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Before the
FEDERAL COMMUNICATIONS COMMISSION

JUN 29 1993

Washington, D.C. 20554

FEDERAL BUREAU OF INVESTIGATION
WASHINGTON, D.C.

In the Matter Of

Amendment of Part 90 of the
Commission's Rules to Adopt

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PR Docket No. 93-61 /

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Summary

Some relief for the ETTM industry is necessary and required. By its NPRM and its natural consequences following potential adoption, the Commission would be eliminating ETTM use of the 902-928 MHz frequency band. Thus far, no rules adopted or proposed are in place to accommodate this devastating effect on the ETTM industry and the hundreds of thousands of consumers it serves.

The Commission has suggested another frequency band and the industry may accept the Commission's suggestion if, by its acceptance, it is not doomed to roam throughout the spectrum with no assurance that its technology will find a fertile place to flourish. ETTM systems and the attendant emerging technology represent the cutting edge of rapid data communication, and the planned innovations for greater development must be allowed to come to the marketplace without

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OFFICE OF THE SECRETARY

In the Matter Of

Amendment of Part 90 of the
Commission's Rules to Adopt
Regulations For Automatic
Vehicle Monitoring Systems

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PR Docket No. 93-61
RM-8013

To: The Commission

COMMENTS OF SAAB-SCANIA COMBITECH AB. COMBITECH TRAFFIC SYSTEMS

producers and consumers. For these reasons, Saab is highly interested in this proceeding and is qualified to suggest improvements to the Commission's proposals.

Balancing Of Interests

As in many rule makings wherein the Commission must determine the public interest in view of varying and competing interests in the use of the radio spectrum, here too the Commission must perform a balancing test to insure that the best, most efficient use of the spectrum will result. What may be different in this matter is the fact that the Commission is not reviewing unused spectrum or spectrum reclaimed from a previously migrating source or spectrum that was lying fallow. Instead, the last few years have seen an increasing interest in this spectrum and many companies have moved to provide numerous services within the band.

A review of 902-928 MHz licensees, operators, and users includes many and varied Part 15 device manufacturers and users, AVM operators, electronic toll collection system manufacturers and operators, amateurs, and spread spectrum device manufacturers and consumers. In fact, the Commission's records will bear out that use of the 902-928 MHz band is quite healthy and has increased at a rapidly increasing rate. At this time, the Commission cannot reasonably conclude that the band lies fallow and unused. Rather, it must conclude that whatever path its rule making might take will create winners and losers, and it is incumbent on the Commission to assure that the public is one of the ultimate winners.

The NPRM appears to conclude that there exists a substantial public interest in the creation of viable LMS systems and that the tracking of vehicles, persons, and other objects is demanded by the public. That there exists evidence of demand is without doubt. That the public interest will be served is also without doubt. What is subject to reasonable scrutiny is whether such demand and public interest is sufficient to justify a rapid evolution in this band which might create economic waste and have disastrous consequences for some manufacturers and users.

If the Commission's ultimate goal is to put forth a plan which brings order and direction to the use of the 902-928 MHz band, then this goal is laudable. However, if in its haste to realize this objective, companies and consumers are injured unnecessarily, then the price is foolishly high. The Commission must avoid quick fixes and assure that those persons which pay the price of the Commission's proposed actions are compensated with an equal amount of assurance in future investment and opportunity.

Coordinating The Nation's Highways

As the Commission has noted, a boom is taking place to coordinate the use of the Nation's highways employing IVHS technology, ETTM systems, LMS systems, and others to promote safety, efficiency and savings through use of RF devices which communicate with local governments and coordinating entities. These interested persons and consumers are charged with the duty of insuring the safe and efficient passage of vehicles and passengers. Devices operating within the 902-928 MHz band have been developed and employed to facilitate the passage and tracking of vehicles. One conspicuous use of the band has been in the development of ETTM

systems which electronically operate toll booths to facilitate the collection and billing of tolls throughout the United States. Some of these systems are presently in place and the installed systems employ the band to receive and process data for hundreds of thousands of consumers.

As the Commission is aware, the systems employ either a "read only" system or a "read-write system" to communicate with tags installed on vehicles passing through the toll lanes at speeds of up to 55 MPH. The transmission of digital data to and from vehicles occurs rapidly, including identifying and "charging" the vehicle for passage through the toll area. Since the power levels at which the associated vehicle tags operate are necessarily low, the introduction into the radio environment of multiple 300 watt, co-channel transmitters installed along the highways (as is contemplated within the NPRM) will create a substantial threat to the reliable operation of these systems. It is well within the boundaries of reason to predict that following the installation of a proposed LMS system within a market, ETTM systems will quickly degrade due to co-channel interference and a substantial increase in the noise floor.

ETTM systems presently serve hundreds of thousands of motorists, enabling those motorists to avoid the costly delay of stopping to pay tolls. The enhanced flow of traffic which results enables the Nation's highways to operate far more efficiently. The relieved requirement to search for change to pay the tolls increases driving safety. The resources used by local governments to collect the tolls is greatly reduced by ETTM systems. The obvious results are that ETTM operators and consumers are enjoying and will continue to enjoy tremendous benefits from the introduction of this technology, including the devotion of saved resources to maintain

and upgrade the Nation's highways. In sum, ETTM systems provide tremendous public benefits in cost, time and safety and must be taken into consideration in whatever steps the Commission now contemplates for use of the 902-928 MHz band by LMS systems.¹

The question then becomes, is this sacrifice of installed ETTM systems advisable without providing for displaced manufacturers and consumers? Millions of dollars in research, development, installation and other associated costs have been expended. The Commission's proposal might make worthless these expenditures unless some compensation is made to first allow for a reasonable time for redevelopment of the systems and a reasonable amortization of existing equipment. If such compensation and assistance is not provided to the ETTM industry, the proposed construction of the LMS industry will be upon the wreckage of the ETTM industry. The destruction of the ETTM industry is not necessary or prudent, and the Commission may take reasonable steps to avoid this unpleasant outcome by logical examination of the problem and possible solutions.

Creating a Safe Haven

If, as the NPRM suggests, there is substantial demand and numerous benefits to be gained by creation of a pervasive LMS industry operating within the 902-928 MHz band, the Commission should determine what should be done to accommodate the displaced interests which exist within the band. When confronted with this challenge in the past, the Commission has

¹ Not all ETTM systems employ the 902-928 MHz frequency band, however, the number of systems employing this band are presently serving hundreds of thousands of motorists.

usually examined three possible alternatives: (1) displacement, (2) accommodation or (3) assisted migration. For the Commission's benefit, Saab hereby examines these three alternatives for ETTM systems presently operating within the 902-928 MHz band.

Displacement: As the evolution of a dynamic telecommunications industry continues, the Commission has seen certain technologies and uses of the spectrum become outdated. With new developments, the Commission can determine when traditional uses of the spectrum have become less prevalent and older spectrum allocations no longer serve a substantial portion of the public. When proposals come forth for better and more innovative use of spectrum which is no being used effectively, the Commission has sometimes decided to displace outdated uses of the spectrum to invite more efficient uses which exhibit high levels of demand and potential.

This scenario does not, however, describe the introduction of ETTM systems into the band. In fact, ETTM's use of the band is exactly inapposite to the traditional, displaced types of radio systems and uses. Accordingly, it appears that selection of a displacement alternative; *i.e.* forced removal from the band, either by rule or *de facto*; is inappropriate for the instant situation. ETTM manufacturers, operators and consumers do not deserve to be uprooted summarily and told to go elsewhere, without any apparent "elsewhere" to go.

Accommodation: As stated *supra*, there is little chance that ETTM systems and LMS systems, as are proposed, can peacefully cohabitate within the band, unless the Commission would consider creating a specific allocation within the band for operation of ETTM systems on which

LMS systems would be prohibited from operating. The low-powered nature of the associated vehicle tags and on-board transceivers operated by ETTM systems are particularly vulnerable to a greatly raised noise floor. Many ETTM systems already possess substantial error rejection capabilities to reduce errors in detection and data collection. However, all of the error rejection capacity in the world will not save an ETTM system when the signal produced by associated tags is far below the noise floor. The signal simply will not be heard above the electronic din of LMS.

Whether the public would be better served by a split allocation within the band to accommodate ETTM operators is subject to debate among reasonable persons. There is much to be gained by LMS and ETTM systems. However, if a split allocation is not made between LMS and ETTM, there is little to be gained in continued operation of ETTM systems in competition with LMS. LMS will clearly be the "winner" and ETTM driven out of the band as systems experience greater and greater unreliability. The question also exists as to whether a dual allocation is even possible. Off frequency LMS systems with limited attenuation might create sufficient harm to the operation of ETTM systems that some sort of guardbands would be required to make a dual allocation within the same band feasible. The eventual consequence of attempting to create a dual allocation would, therefore, leave necessary guardbands unusable by all and fallow. Since one of the clear intentions of the NPRM is to promote efficient use of the spectrum, there exists a serious question as to whether such an allocation scheme meets or defeats this key issue.

Migration With Assistance: As the Commission has stated within its NPRM, investments in development of AVM *nee* LMS systems have been chilled due to uncertainty in regulation. Manufacturers are often reluctant to devote substantial resources toward development of systems which will operate within an uncertain and perhaps volatile regulatory environment. Accordingly, one element of the Commission's proposals is to provide needed certainty to create incentives for greater investment and development. No less than the LMS industry, the ETTM industry requires a similar assist from the Commission and Saab strongly urges the Commission to provide this necessary guidance.

As stated above, simple displacement does not reflect the high value which operation of ETTM systems provides to the public. Summarily uprooting these established system will penalize the ETTM industry for its robust growth and strides in efficient use of the spectrum in the public interest. Conversely, accommodation within the 902-928 MHz band might not serve the specific ends of the Commission's proposal.

Given the foregoing, the Commission must logically conclude that the ETTM industry is worth saving, assisting and accommodating. If the Commission accepts the obviously positive benefits arising out of operation of ETTM systems, the Commission creates in itself a duty to assist the industry to assure that it will not be forced into a nomadic search across the spectrum, seeking a safe haven where investment and use and the attendant benefits are allowed to thrive. In sum, ETTM should be provided with a spectrum home so that the extreme benefits to the public arising out of operation of ETTM systems can be enjoyed without future threat.

Saab contends that ETTM systems are deserving of the Commission's regulatory assistance. It further contends that the industry's *bona fides* have been amply demonstrated through its extensive research and development, the empirical data of its benefits as expressed by consumers, and its wide acceptance in the marketplace. In fact, Saab contends that more consumers will enjoy direct benefits as a result of the continued proliferation of ETTM systems than those which will enjoy the benefits to be borne by introduction of LMS systems. For these reasons, the Commission should act now to promote and assist the further development of ETTM systems and technology by providing, once and for all, a safe haven for future operation.

Accommodating ETTM Systems

At paragraph 18 of its NPRM, the Commission stated that the 2450-2483.5 MHz band is available for operation of "narrow-band systems" and suggests that ETTM systems might be lumped in with all narrow-band LMS. As the Commission is aware, ETTM systems are not narrow-band or LMS systems. They are more akin to field disturbance sensors, however, with far greater capacity and flexibility and functionality than typical field disturbance sensors. Saab further notes that they have far greater public benefits than field disturbance sensors and will require greater power than such systems. The transceivers used to communicate with vehicle tags and other associated portions of a fully integrated read-write system will require output powers and receiver emissions which exceed those allowed under Part 15. As the Commission's records will demonstrate, the rapid evolution of ETTM systems is quickly taking the industry out of the unlicensed arena of low-power equipment and placing it squarely within the Private Radio Services.

ETTM systems further require the transmission of extremely high data rates and high levels of receiver sensitivity to communicate with low-power, rapidly moving vehicular tags. It is, therefore, apparent that a viable ETTM system will require some level of protection within the spectrum to assure its expansion and its full technological growth so that the full range of benefits can be enjoyed by millions of motorists. As in Saab's earlier discussion regarding accommodation within the 902-928 MHz band, such operation requires that the noise floor be kept at reasonable levels and that competing operators be kept to a minimum.

ETTM systems also have other unique characteristics which requires a separate allocation for continued viability and growth -- inter-lane interference and efficiency. That is, to provide a high level of data integrity, it is imperative that ETTM systems be constructed so that the frequency employed by one transmitter serving one lane of traffic, is not duplicated by the adjacent lane. The reasons are obvious. If a vehicle is receiving data communications from two transmitters, assigned to adjoining lanes, operating upon the same vehicle, the incidents of either interference or double-billing increases dramatically. Accordingly, a multiple-frequency system to avoid adjacent lane data duplication across a toll plaza is essential to reliable operations.

Saab's empirical studies demonstrate that a viable ETTM system operating across multiple lanes would require a two-lane separation for frequency duplication. That is, no frequency would be duplicated within two lanes of another. This requirement for the maintenance of data integrity in the operation of high-speed ETTM operations is imperative if ETTM systems are to

reach their full potential in serving millions of motorists per day. Accordingly, ETTM's new spectrum home should be designed to accommodate this need.

Saab proposes that the Commission create rules within the context of this proceeding which would enable rapid and continued growth of ETTM technology and use within the 2450-2483.5 MHz band. Specifically, Saab strongly suggests that the Commission recognize ETTM licensed operation and provide an allocation at the 2450-2470 MHz band for operations of these systems, prohibiting occupation of the band by other operators. Only by allocating specific spectrum and creating rules for operation within the band, will the Commission be able to avoid the destruction of the ETTM industry. To do otherwise would be to add false hope to the existing frustration of ETTM manufacturers, consumers and operators which are seeing their use of the 902-928 MHz band erode via the Commission's NPRM.

Such an allocation would be fully justified. The suggested allocation would provide a fertile spectrum field for increased innovation and growth of an already vibrant industry. The use of the band would bring tangible and welcome benefits to millions of Americans. The increased use of ETTM systems would result in better highway use and maintenance. And local governments would benefit by efficient operation of tollways, without the present delay and inefficiencies experienced by all of the users of this Country's highways. Rarely does the FCC have an opportunity to assist an already vibrant, productive, growing industry with a fully established record of demand and use, without the need to engage in some form of regulatory speculation. No such guesses need be made here. The future is now in rapid development of

ETTM systems, as thousands of new users of ETTM systems begin enjoying the benefits of existing systems each month.

If the Commission supports Saab's proposed ETTM allocation, it will not be without cost to existing ETTM operators. Installed ETTM systems will need to be retrofitted to accommodate the new allocation outside of the 902-928 MHz band. Standards already created by certain states and local governments will need to be changed. Some manufacturers will be required to redesign existing systems. The cost to the ETTM industry will not be unfelt. However, the cost will be much easier to bear if manufacturers and operators are not led to believe that the next generation of ETTM systems will suffer the same fate as those designed to operate in the 902-928 MHz band.

The Commission's NPRM proposes that the ETTM industry pay a substantial price in meeting the Commission's stated objectives. Simply stated, the Commission is proposing that ETTM systems exit the 902-928 MHz band and occupy some other spectrum. The Commission has gone so far as to imply that the area which ETTM operators should examine is the 2450-2483.5 MHz band. Saab hereby requests that the Commission provide safe passage to the new spectrum and peaceful existence following the industry's relocation. The Commission's actions arising out of its rule making should provide the ETTM industry an "Exodus" and not a "Trail Of Tears".

Preparation For Departure

As the Commission is aware, no industry changes frequency use overnight. Preparation must be made in the form of research and development, consumer education, retrofitting existing systems if possible, and other functions to assure a logical and peaceful transition. When an industry, like ETTM, is providing an abundance of services to the public, such transition can be time consuming and costly. However, in the instant situation the Commission has the benefit of some manufacturers which have designed their systems for the international marketplace. Saab's system is already designed to operate above 2450 MHz and another operator, Amtech, has designed its system with modules which can be employed to utilize the suggested, higher frequency band. Both these manufacturers designed their systems to meet the U.S. and the European standards for operation of ETTM systems which has allocated spectrum for ETTM systems within the 2450-2483.5 MHz band. Accordingly, Saab's proposed 20 MHz allocation and the Commission's suggested area of migration coincide with European standards and the activity of some of the present manufacturers.²

Unfortunately, the systems presently operated within the United States employ the 902-928 MHz band, including the tens of thousands of vehicular tags which will need to be changed out to accommodate a new frequency band. This means that operators will need to retrofit their systems and perform a "recall" of all vehicular tags to insure frequency compatibility with the

² In fact, the twenty megahertz allocation requested herein is consistent with other countries which have allocated spectrum within that range of the requested band.

new systems. Although this is a daunting task, it is feasible providing that a sufficient amount of time is provided to deal with the problem.

Saab recommends that to protect existing ETTM systems during the transition time, the Commission create a freeze on all applications for LMS systems for a period of twenty four

months beyond the conclusion of this rule-making. Such freeze would only apply to cases

Such a freeze would enable ETTM operators greater time to reap a fair benefit from existing systems prior to migration from the band and forced expenditures to finance a frequency change. It would also allow for the installation of companion systems, so that an additional system might be installed at existing ETTM facilities, operating on the new frequency band during a transition period. Therefore, as a consumer came in for additional credit to be applied to their installed tag, a new tag operating at the higher frequency band could be installed on the consumer's car. The consumer would continue to receive services on the higher band and the operator would not be forced to bear the expense of a massive recall necessitated by a too rapid transition time.

As stated above, there are a host of benefits to the Commission's provision of a reasonable transition time for manufacturers, operators and consumers of ETTM equipment and services. Saab can contemplate no public interest to be served by a rapid eviction of these parties from the frequency band. The transition can happen naturally, efficiently, and without undue hardship with a minimal amount of protection to be provided by the Commission. For these reasons, Saab requests that such necessary protection be provided to avoid disaster being visited upon operators and users of ETTM systems.

The Safe Harbor

Saab contends that ETTM operators and the thousands upon thousands of affected consumers deserve a safe harbor for continued operation and development. Saab further contends that the Commission should not delay in creating this safe harbor to promote the

necessary migration and to assure the continue vibrant growth of ETTM systems and technology throughout the United States. To fail to create now a safe harbor is to create such a chill on development of ETTM systems as to doom the industry. Saab does not believe that the Commission serves the public interest by the creation of rules to save one industry, if such action destroys another existing, vital industry. Accordingly, Saab suggests that 20 MHz of spectrum be allocated for the operation of ETTM and related systems.

Saab further requests that both type acceptance and licensing rules be developed immediately, within the context of this proceeding, to provide necessary guidance and assurance for continued investment in the ETTM market. To assist the Commission, Saab respectfully suggests the following:

Saab suggests a maximum bandwidth of 5 MHz for the operation of fixed stations. As stated above, a necessary function of an ETTM system is the rapid transmission of enormous amounts of data. A wide bandwidth is, therefore, required to assure the rapid transmission of data to serve the ever increasing avalanche of consumers which are installing ETTM equipment in their vehicles. The rapid transmission of data will also enable operators to increase the functionality of the systems by integrating more sophisticated data messages and functions; and improve operators error-rejection capacity. The ETTM industry predicts that some facilities will soon experience use in excess of a million motor vehicles per year, traveling at speeds in excess of forty miles per hour, employing ETTM equipped toll plazas at a rate of more than once a day.

Accordingly, wide bandwidth will be required to accommodate the rapid transmission of increasing large and complex data streams as the versatility of these systems is increased.

Consistent with the Commission's proposed rules for narrow-band LMS systems, Saab does not suggest a minimum frequency tolerance. Instead, the tolerance would be specified on each operator's authorization. Given the nature of Saab's requested allocation and the manner in which the systems are operated with some degree of geographic separation, the issue of frequency tolerance will not pose a problem for the intended use and administration of these systems.

Saab suggests that ETTM facilities and associated roadside transceivers be limited in power to no more than twenty watts. As these systems continue to evolve, roadside transceivers communicating with vehicles not yet passing through a toll gate will be required to monitor traffic flow and identify vehicles. Communication with trucks and cars will not simply occur at the time that they pass through a toll lane, but will be integrated throughout the entire passage down a roadway or through a tunnel. Such functions will assist in monitoring the rate of traffic and assist in quickly identifying where traffic accidents and backups have occurred to provide efficient response. Therefore, power needs must be determined based on the future use of these systems and not merely the operation of a basic booth service.

Offsetting the need for high power is the ability to install transceivers at strategic locations along the highway. Accordingly, greater power would probably not be necessary in

the future as the distance between each radio location and the associated vehicle would likely never exceed one mile. However, some additional power is required to allow each transmitter within the system to communicate with the next adjacent transmitter, thereby creating a series of links back to a collection and evaluation point. In Saab's estimation, the growth of these systems will require that each transceiver be allowed to transmit up to 20 watts of power to provide for efficient operation.

Saab accepts the Commission's further standard for signal attenuation of LMS systems and suggests that it be applied to operation of ETTM systems in the 2450-2470 MHz band. That is that signals within the band need not be attenuated, but signals outside of the authorized band must be attenuated by at least $55 + 10\log(P)$ dB where P is the highest emission (in watts) of transmitter inside the authorized bandwidth.

Saab does not believe that exclusivity need be an issue in licensing of ETTM systems and suggests that operators share use of the band and cooperate in any necessary coordination in accord with Section 90.173. The natural geographic separation of the systems will insure that cooperation will be promoted and the industry does not exhibit the same elements of open competition as is found in many other markets, due to operation by cooperative local governments. Accordingly, Saab suggests that the band be fully shared among operators.

Finally, to insure that the systems will be used in a manner which promotes efficient use and does not invite uses other than ETTM and related functions, Saab suggests that the

Commission establish a height limitation for construction of transceivers. Saab respectfully suggests that a limitation that no antenna be installed at a height of greater than thirty (30) feet above ground level.

To further assist the Commission, the above recommended technical limitations for licensing of ETTM systems and the allocation of the spectrum necessary to provide required protection of these systems is attached hereto at Exhibit A.

Conclusion

Some relief for the ETTM industry is necessary and required. By its NPRM and its natural consequences following potential adoption, the Commission would be eliminating ETTM use of the 902-928 MHz frequency band. Thus far, no rules adopted or proposed are in place to accommodate this devastating effect on the ETTM industry and the hundreds of thousands of consumers it serves. No safe harbor has been established in recognition of the unique design criteria for operation of these systems. The possible result will be a substantial chilling of the ETTM industry and the rejection by investors in the future development of these systems. Millions of dollars in wasted research and development, governmental examination, installation, and consumer use will be the result if some viable solution is not adopted.

The Commission has suggested another frequency band and the industry may accept the Commission's suggestion if, by its acceptance, it is not doomed to roam throughout the spectrum with no assurance that its technology will find a fertile place to flourish. ETTM systems and the

attendant emerging technology represent the cutting edge of rapid data communication, and the planned innovations for greater development must be allowed to come to the marketplace without the fear that the entire industry will be moved from the 2450-2483.5 MHz frequency band in the future. The industry might be able to survive one move, but another would destroy all investment confidence and effectively end the industry.

It is, therefore, squarely in the public interest for the Commission to resolve to allow this industry to grow -- if not at 902-928 MHz, then at 2450-2470 MHz. Saab respectfully requests that the Commission act now to insure ETTM's long term viability and growth by adoption of the suggested licensing standards. Saab is convinced that millions of United States motorists will applaud the Commission's actions to provide this necessary service to a grateful public.

Respectfully submitted,

SAAB-SCANIA COMBITECH AB, COMBITECH
TRAFFIC SYSTEMS

By



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Dated: 6/29/93

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EXHIBIT A

90.XXX Electronic Toll and Traffic Management Service

- (a) These provisions authorize the licensing of systems in the Electronic Toll and Traffic Management service (ETMS). ETMS systems utilize nonvoice radio techniques to monitor the passage of motor vehicles over highways, including the automated collection of fares. Only systems which include the use of vehicular tags to communicate by use of radio with operators for the collection of fares and tolls will be eligible for operation within this service.
- (b) Only ETMS systems shall operate in the 2450-2470 MHz band subject to the cooperative sharing requirements of 90.173, the use of the frequency band by Industrial, Scientific and Medical (ISM) devices, and the following limitations:
 - (1) No fixed facility shall employ greater than 20 watts Effective Radiated Power from any location nor be installed with an antenna height to tip at greater than thirty feet above ground level. Fixed facilities may be licensed for either one-way or repeater operation, including operational fixed operation.
 - (2) Associated vehicular tags shall not produce greater than twenty milliwatts of power at the transmission or reflection source. There shall be no requirement to obtain separate licensing of associated vehicular tags.
- (c) Applications to license ETMS operation shall include the following information:
 - (1) A detailed description of the manner of operation, including a system diagram or map of the proposed system.
 - (2) A description of the applicant's authority to operate an ETMS system pursuant to its authority as a local government agency or other authority granted for the purpose of operation of a tollway, tunnel or bridge which includes the collection of fares or tolls.
- (d) ETMS systems shall be exempted from the identification requirements of 90.425; however, the Commission may impose automatic station identification requirements when determined to be necessary for monitoring and enforcement purposes.

90.179 Shared use of radio stations.

[Include ETMS as a permitted service]

90.205(b) Power

[Include the 2450-2470 MHz band with 20 watts effective radiated power, subject to proposed footnote 13]

90.209 Bandwidth limitations.

NEW (11) The maximum authorized bandwidth for operation of ETMS base stations shall be 5 MHz and the minimum bandwidth shall be 2 MHz for operation in the 2450-2470 MHz frequency band.

NPRM's Previously proposed (m)

[Include operation of ETMS systems at 2450-2470 within proposed language]